In the Claims

1. (Cancelled).
2. (Cancelled).
3. (Cancelled).
4. (Cancelled).
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48. (Cancelled).
49. (Cancelled).

50. (New) A method for secured software patching and upgrade in a distributed wireless sensor network, which comprises:

receiving a software upgrade with a root node;

communicating the software upgrade from the root node to a nodes acting as software upgrade repositories; and

communicating a session key, a patch key length, and a prime modulus to the nodes acting as software upgrade repositories, causing the nodes to generate a patch key with the session key, patch key length, prime modulus, a Diffie-Hellman algorithm, and a locally-generated random number, the patch key being used by the nodes to authenticate a software upgrade.

51. (New) The method according to claim 50, wherein the patch key length varies based on a branch of a spanning-tree.

52. (New) The method according to claim 50, wherein the root node acts as a gateway to another network.

53. (New) The method according to claim 50, wherein the root node acts as a gateway to the Internet.

54. (New) The method according to claim 50, wherein the nodes acting as software upgrade repositories exist on orthogonal branches of the network.

55. (New) A method for secured software patching and upgrade in a distributed wireless sensor network, which comprises:

receiving a software upgrade from a root node;

receive a session key, a patch key length, and a prime modulus from the root node;

generating a patch key with a Diffie-Hellman algorithm and a locally-generated random number, the patch key being used by the nodes to authenticate the software upgrade;

upgrading the software when authenticated prior to expiration of the session key.

56. (New) The method according to claim 55, wherein the patch key length varies based on a branch of a spanning-tree.

57. (New) The method according to claim 55, wherein the root node acts as a gateway to another network.

58. (New) The method according to claim 55, wherein the root node acts as a gateway to the Internet.